

# PATENT SPECIFICATION

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DRAWINGS ATTACHED

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## (54) IMPROVEMENTS IN OR RELATING TO SEALED CONTAINERS

(71) We, BOXAL BEAUREPAIRE S.A., of 38-Beaurepaire, France, a French Body Corporate, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

This invention relates to containers, and in particular to containers sealed by a tearable membrane.

The use of tearable membranes for the air-tight or water-tight closure of many types of containers is now general. These membranes cannot generally be removed except by circular cutting or cutting in the form of a spiral with the aid of some tool, knife, scissors, screw driver, or by tearing or pulling on one of their parts.

Very often the removal of these membranes necessitates rapid consumption of the contents in particular when it is perishable or is able to evaporate for example. Sometimes, devices for closing boxes with membranes are completed by a cover which is itself fixable in the opening of the container.

According to the invention, a container comprises a body part having an opening at one end, a membrane having a central part, an annular weakened part surrounding the central part, and a peripheral part set on the edge of the body part surrounding the opening, and a reversible cover, the under side of the cover being adapted to co-operate with the peripheral part to seal the opening, the top side of the cover having a curved surface for entry into the opening when reversed to engage against the tense central part of the membrane, said top side also having a plurality of projections adapted to act on the annular weakened part of the membrane for removing the central part.

Other characteristics and features of the invention will now be described with reference to the accompanying drawings, given by way of example, in which:—

Figure 1 is a side elevation of a container according to the invention;

Figure 2 is a vertical cross-section of Figure 1 on a larger scale;

Figure 3a is a plan view of Figure 1 and Figure 3b is a detail view on a larger scale of Figure 2;

Figure 4 is a view similar to Figure 2 for another position of the cover of the container;

Figure 5 shows a view similar to Figure 2, according to another modification.

The container shown in the drawings has a body 1 on the upper part of which is placed a cover 2 (Figures 1 and 2).

The body 1 is metallic, for example of tin or aluminum, and the cover 2 is made of plastics material.

As shown (Figures 2 and 3b), body 1 has inwardly near its opening a rib 3 obtained by pinching the lateral wall and which forms a support for a metallic membrane 4 the peripheral part of which is set on the edge of the opening of the body at 4a.

The lower face of this membrane has an annular groove or nick 5 extending perpendicular to the vertical side of rib 3 previously mentioned and which thus forms a circular zone of reduced resistance. This zone is necessary to permit the removal of the part of the membrane which closes the container, as we shall now describe.

Cover 2 is in the form of a cap and is engaged in the opening of the container by a part 2a defined on the lateral surface of the cover by an annular rib 2b bearing on the edge of the container in the closed position of the cover. Part 2a has an outer diameter corresponding to that of the opening of the container in such a way as to only be engageable in the latter by slight forcing which guarantees perfect closing of the container.

Inside cover 2, it is possible to place either a measuring spoon d, or one or several products different from those which will be contained in the container, intended for example to be mixed upon use with the contents of this container.

Above the annular rib 2b the outer pro-

file 2c of the cover is also cylindrical but its diameter is slightly less than that of part 2a in order to allow free sliding of the cover in the opening of the container when it is engaged therein by positioning it upside down to what is illustrated in Figures 2 and 3b, that is to say as shown in Figure 4.

This cover is in effect also used to make the membrane 4 bulge in the part thereof which surrounds nick 5. To this effect, the lateral part 2c of the cover has a height substantially equal to the distance separating the edge of the container and the membrane and the outer side of its top is curved at 6 (Figures 2 and 3a) and carries four projections 7 staggered by 90° one with respect to the other and inscribed by their outer sides in the circle formed by nick 5. The top of the curve 6 of the cover extends above the upper level of projections 7.

If cover 2 is then placed in the position of Figure 4 and there is exerted on this cover a push F, the curved part of the cover will contact member 4 before the projections themselves touch this member in such a way that the membrane will be tensed by downward deformation as shown in Figure 4.

As soon as the projections contact the membrane, push F will also be transmitted to the membrane by these projections, which, bearing in mind their small surface, will be applied by the membrane with specific pressure which is relatively high. The thickness of membrane 4 and the depth of nick 5 will be selected such that a user need not exert excessive effort to cause the rupture of the bottom of nick 5 perpendicular to projections 7. It will suffice then to continue to exert pressure F whilst relatively turning cover 2 and the body of the container 1 in order that the part of the membrane comprised within the nick 5 detaches itself and falls towards the bottom of the container.

The membrane is however retained in its downward movement by the collar 3a formed at the foot of rib 3 previously mentioned and the diameter of which is less than that of nick 5 of membrane 4 in such a way that the same will necessarily rest on the collar when it has been detached from the container.

In a modification, the fall of this membrane on collar 3a can be prevented by providing the cover 2, in particular the peak of its curved surface, with a suction cup retaining the cut part of the membrane, which makes it possible to extract it very easily from the container.

This suction cup can be recessed on the cover or can be formed within it by suffi-

ciently weakening the central part of the curved zone to make it flexible.

In another modification also not shown, the fall of the membrane can be prevented by retaining this membrane with an adhesive material which can be applied on the cover or even on the membrane 4.

When the membrane has been removed, the container is closed by replacing the cover in the position of Figures 1 and 2.

In a modification also not shown the part of the cover opposite the curved zone can have a hollow housing forming a measure for the product contained in the container.

It will be noted that with the system proposed with the present invention, the opening of the container is complete after removing the membrane and that this opening can be made without using any tool.

Additionally, the edges of the part of the membrane remaining in the container are not sharp and are shielded by the rib 3 of the container.

It will be noted again that cover 2 can, in a modification, be arranged in such a way as to overlap the opening of the container (Figure 5) and not to engage itself in this opening.

#### WHAT WE CLAIM IS:—

1. A container comprising a body part having an opening at one end, a membrane having a central part, an annular weakened part surrounding the central part, and a peripheral part set on the edge of the body part surrounding the opening and a reversible cover, the under side of the cover being adapted to co-operate with the peripheral part to seal the opening, the top side of the cover having a curved surface for entry into the opening when reversed to engage against and tense the central part of the membrane, said top-side also having a plurality of projections adapted to act on the annular weakened part of the membranes for removing the central part.

2. A container as claimed in claim 1, wherein said body is provided with an inwardly directed rib adjacent said opening, that part of the membrane between said annular weakened part of said peripheral part resting on said rib.

3. A container as claimed in claim 2, wherein said rib has a lower portion protruding inwardly of said annular weakened part of said membrane.

4. A container as claimed in claim 1, 2 or 3, wherein said cover comprises a housing for a product different from that intended to be placed in said container body.

5. A container as claimed in claim 1, 2 or 3, in which the under side of the cover is formed as a measuring for a product received in the container.

6. A container as claimed in any one of the preceding claims, wherein said annular weakened part of said member consists of an annular groove. 20
- 5 7. A container as claimed in claim 6, wherein said projections are adapted to rupture said annular weakened part and to cut away said annular weakened part upon turning said cover.
- 10 8. A container as claimed in any one of the preceding claims, comprising means for retaining said central part of said membrane on said curved surface after removal of said central part.
- 15 9. A container as claimed in claim 8, wherein said retaining means comprises a suction cup on said curved surface.
10. A container as claimed in claim 8, wherein said retaining means comprises adhesive material on said curved surface. 20
11. A container as claimed in claim 8, wherein said retaining means comprises adhesive material on the central part of said membrane. 25
12. A container as claimed in any one of the preceding claims, wherein said container body and said membrane are metallic and wherein said cover is of plastics material.
13. A container substantially as hereinbefore described and substantially as shown in Figures 1 to 4 or Figure 5 of the accompanying drawings. 30

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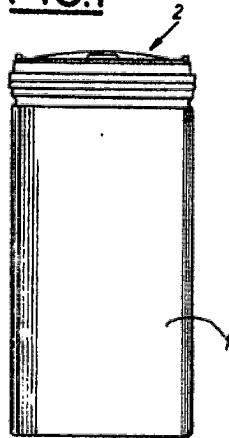
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Sheet 1

**FIG.1**



**FIG.3a**

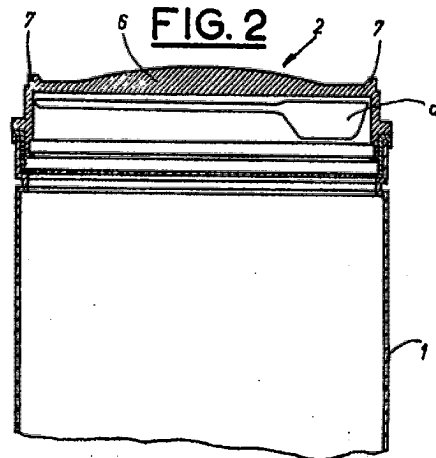
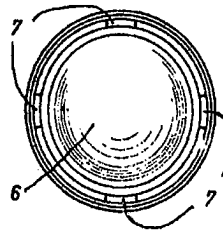
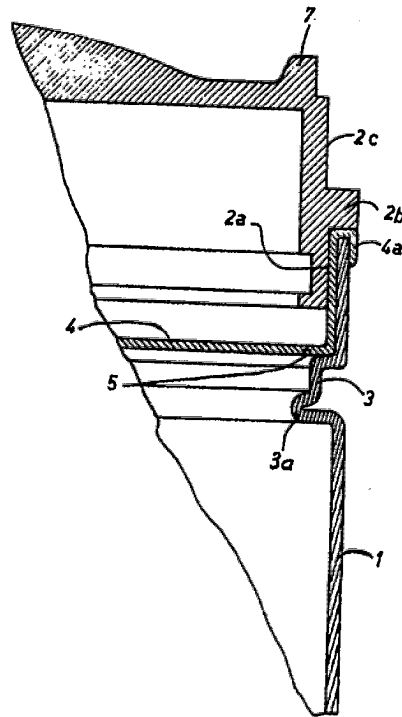


FIG. 3b



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Sheet 3

FIG. 4

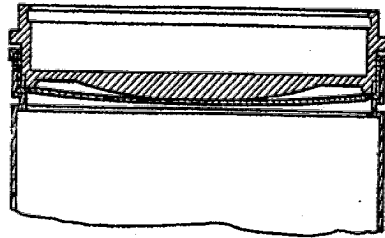


FIG. 5

